# MEMORANDUM

**To:** Board of Regents

**From:** Board Office

**Subject:** Establishment of a Center for Bioinformatics and Computational Biology, SUI

**Date:** January 6, 2003

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**Recommended Action:**

Receive the University of Iowa's report on establishing a Center for Bioinformatics and Computational Biology.

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**Executive Summary:**

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|---|---|
| Board Policy | Board of Regents policy requires the reporting for informational purposes all new centers and institutes which are supported by less than $25,000 in State funds. |
| Collaborative Effort Between Colleges of Engineering and Medicine | The University of Iowa has established a new Center for Bioinformatics and Computational Biology (CBCB), a collaborative effort between the College of Engineering and the Carver College of Medicine. Professor Thomas Casavant will direct the Center. For the past seven years, an expanding set of collaborations have been developed among faculty in the two colleges, focused on the area of applied computational sciences within Genomics, Genetics, Molecular Biology, and their applications for medical research. |
| $35 million in External Funding | To date these collaborations have attracted more than $35 million in external funding. The Center will be operated on a cost-recovery basis. Less than $25,000 in state funds is being used. |
| Interdisciplinary Program Being Developed | The CBCB is a high-performance computational and informational resource uniquely designed to help researchers learn about the genetic basis of human disease and other biomedical phenomena. In addition, the CBCB is working to develop interdisciplinary programs of study to teach professionals the skills of biomedical problem solving using modern computational methods. The Center will solidify activities and engage bioinformatics researchers from the Colleges of Engineering, Liberal Arts and Sciences, Public Health, Business, Pharmacy, Dentistry, Nursing, and the Graduate College. |

| | |
|---|---|
| Cooperative Efforts with ISU | This Center is unique in Iowa with its focus on medical research, however, it will complement activities in the Laurance H. Baker Center for Bioinformatics and Biological Statistics at Iowa State University, and build upon existing interactions between researchers at the two institutions. The CBCB is supportive of the University Strategic Plan and will play an important role in the University of Iowa Informatics Initiative. |
| Board Questions for New Centers and Institutes | Attached to this memorandum are the University's responses to the Board of Regents questions for new centers and institutes. |

Robert J. Barak

Approved: Gregory S. Nichols

h/aa/docket/2003/January/GD4h

**6.06 Criteria for New Centers and Institutes**

1. What is the title of the proposed center or institute?

   Center for Bioinformatics and Computational Biology (CBCB)

2. What is the administrative relationship of the proposed unit to other entities on campus, such as departments or colleges?

   CBCB is jointly administered by the College of Engineering and the Roy J. and Lucille A. Carver College of Medicine.

3. To whom will the administrative director of the unit report?

   The Deans of the College of Engineering and the Roy J. and Lucille A. Carver College of Medicine will provide executive oversight.

4. Succinctly describe the basic purposes and objectives of the unit.

   CBCB's mission is to educate and conduct research in the broad fields of bioinformatics and computational biology.

   a. How will the activities of the unit relate to the general mission and teaching programs of the university?

      Bioinformatics and computational biology support and advance the biosciences by developing and testing informatics tools capable of mining and analyzing the large amounts of diverse data and information inherent in the process of knowledge discovery in the biosciences.

      The University of Iowa's Informatics Initiative calls for: 1) programs of study designed to yield professionals skilled in problem solving, and 2) an augmentation of research programs that are fueled by the application of informatics. The proposed Center for Bioinformatics and Computational Biology is designed to catalyze the development of new areas of study and expanded research opportunities in informatics areas related to the basic life sciences and applied bio-medicine. University of Iowa graduates trained in bioinformatics along with the expanded research in computational biology will contribute significantly to the achievement of Iowa's goals in education, economic development, and quality of life.

   b. How do they relate to the strategic plan of the department and/or university?

      Bioinformatics and computational biology support and advance many fields within the biosciences and medicine, many of which are specifically designated as areas of focus within the University's Strategic Plan.

5. Do similar units exist at other public or private colleges or universities in Iowa? If so, how does the proposed unit relate to them?

**The proposed center would be unique in Iowa with its focus on medical research. The center would, however, complement activities in the Laurence H. Baker Center for Bioinformatics and Biological Statistics at Iowa State University, and would build upon existing interactions between researchers engaged in bioinformatics activities at ISU and UI. An example of ongoing interactions includes the annual Joint Bioinformatics Workshop, which has been held since Fall 2000.**

6. What are the proposed sources and annual amounts of funding for the unit? Please itemize. (Include faculty, staff, and clerical salaries; supplies; equipment; travel; other costs)

**See Appendix--Resources**

7. Which of the costs in item 6 represent new financial obligations to the general fund of the university?

**None**

**6.07 Post-Audit of New or Expanded Programs**

1. Is this program now available in other colleges and universities in Iowa? Where? Describe need for program.

**Not applicable—not an academic unit.**

2. Date program was approved by Board of Regents and date program was implemented.

**Not applicable.**

3. Projected Enrollments

   a. List actual headcount enrollments and credit hours generated by majors and nonmajors in this program for the last five years and estimate these items for the next three years.

   **Not applicable.**

   b. How many dropouts of this program can be identified over the last five years? What reasons were given for leaving the program?

   **Not applicable.**

4. What have been the employment (placement) experiences of any graduates of this program?

**Not applicable.**

a. List the number of graduates (completions) by year.

b. What has been the success rate for graduates with respect to certification and/or licensure, if applicable?

c. How many undergraduate completers of the program have been accepted into graduate study programs?

d. What has been the success rate for obtaining jobs for graduates of the program:

1) in the field or a related field?
2) in nonrelated fields?
3) unemployed?

e. What has been the success rate for obtaining the preferred first job in the field by graduates of the program?

5. Has this program been unconditionally accredited? By whom? If not, why, and when is such accreditation anticipated?

**Not applicable.**

6. Outline the current FTE staffing of the program and estimate future staffing needs for the next three years.

**Not applicable.**

7. Provide operating budget for proposed program or the unit that houses the program if an individual program budget is not available. (See categoriesbelow.)

**Not applicable.**

8. Outline the increases in expenditures that resulted in the adoption of this program, as well as estimate the increases that will occur over the next three years.

**Not applicable.**

| | Actual | | | | Estimated | | | |
|---|---|---|---|---|---|---|---|---|
| | Year One | Year Two | Year Three | Year Four | Crnt Year | Next Year | Sec Year | Third Year |
| Faculty | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Graduate Assistants (other staff) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| General Expense (excluding computer use) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Equipment | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Library Resources | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Space Needs (amt. & cost of new space and/or remodeled space | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Computer use | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| Other Resources (explain) | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
| TOTAL | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |

b. If these expenditures were covered by reallocations, please describe the reallocations.

**Not applicable.**

c. If the expenditures reported in 8 above represent an increase for expenses estimated at the time the new program was proposed, please explain.

**Not applicable.**

*Appendix—Resources*

### *Table 1. Summary of current research support*

| Casavant - Research Activity | | | | | |
|---|---|---|---|---|---|
| External Support FY 01-02 | | A | B | C | B- C |
| | | Total Award | Casavant | Casavant | Unacct'd |
| Project / Period | Total Award | FY 01-02 | FY 01-02 | sub-account | ext support |
| Brain Molecular Anatomy Project (NIH-NIMH) | $ 4,296,810 | $ 1,142,800 | $ 380,933 | $ 199,137 | $ 181,796 |
| 2001-2004 (renewal) | | | | | |
| Cancer Genome Anatomy Project (NIH-NCI) | $ 2,608,628 | $ 869,543 | $ 289,848 | $ 128,242 | $ 161,606 |
| 1998-2002 | | | | | |
| Creation of Gene Resource for Pig (USDA-ISU) | $ 185,646 | $ 92,823 | $ 46,412 | $ 32,730 | $ 13,682 |
| 1999-2002 | | | | | |
| Rat Gene Discovery and Mapping (NIH) | $ 5,737,431 | $ 1,434,358 | $ 478,119 | $ 138,862 | $ 339,257 |
| 1999-2002 | | | | | |
| Two-Pronged Strategy…Full-Length cDNAs (NCI) | $ 1,539,888 | $ 513,296 | $ 256,648 | $ 187,386 | $ 69,262 |
| 1999-2002 | | | | | |
| Full-Length Seq cDNA for MGP (NIH-NCI) | $ 485,900 | $ 485,900 | $ 242,950 | $ 70,282 | $ 172,668 |
| 2000-2001 (closed 11/01) | | | | | |
| Gene Discovery in Visual System (NIH-NEI) | $ 3,311,903 | $ 1,655,952 | $ 413,988 | $ 341,940 | $ 72,048 |
| 2000-2002 | | | | | |
| Functional Genomics for CF in the Lung (CFF) | $ 2,205,000 | $ 735,000 | $ 183,750 | $ 90,752 | $ 92,998 |
| 2001-2004 | | | | | |
| Center for Macular Degeneration / Alcon, Inc. | $ 4,000,000 | $ 1,000,000 | $ 333,333 | $ 70,000 | $ 263,333 |
| 1999-2003 | | | | | |
| | | | | | |
| TOTALS | $ 24,371,206 | $ 7,929,671 | $ 2,625,981 | $ 1,259,331 | $ 1,366,650 |

### Table 2. Commitments to the CBCB

College of Engineering

- $30,000/year for 3 years – unrestricted support for center activities
- Up to 6,000 sq. ft. of laboratory and office space in the Seamans Center for Engineering Arts and Sciences
- Administrative stipend for center director (if director is from engineering faculty)
- 50% of salary support for two faculty lines
  - faculty line 1 (50/50 appointment in Biomedical Engineering and Ophthalmology)
  - faculty line 2 (50/50 appointment in Biomedical Engineering and Biology)

Carver College of Medicine

- $30,000/year for 3 years – unrestricted support for center activities
- Administrative stipend for center director (if director is from medicine faculty)
- 50% of salary support for one faculty line
  - faculty line 1 (50/50 appointment in Biomedical Engineering and Ophthalmology)

Office of the Vice President for Research

- $20,000/year for 3 years – unrestricted support for center activities